



B.E DEGREE EXAMINATIONS: APRIL 2018

(Regulation 2014)

Eighth Semester

MECHANICAL ENGINEERING

U14METE89 : Project Engineering and Management

COURSE OUTCOMES

CO1: Understand the concept of a project & its categories, roles and responsibilities of a Project leader

CO2: Understand the concept of project planning and cost estimation

CO3: Understand the project organization and staffing the project team

CO4: Discuss tools and techniques of project management

CO5: Know the performance indicators in project management and its role in the environment

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The triple constraints on a project are CO1 [K₁]
 - a) Time, cost, and profitability
 - b) Time, cost, and quality and/or scope
 - c) Resources required, sponsorship
 - d) Calendar dates, facilities available, and involvement, and funding

2. Your company does only projects. If the projects performed by your company are for customers external to your company and a profit criterion exists on the project, then your organization is most likely: CO1 [K₁]
 - a) Project-driven
 - b) A hybrid
 - c) Non-project-driven
 - d) All of the above are possible based upon the size of the profit margin

3. Multiple selection item with multiple choice code CO2 [K₂]
Which statement is correct?
 1. The most common terminology for a reusable project management methodology is Template
 2. A structured process for managing a multitude of projects is most commonly referred to as Project management policies
 3. Projects that remain almost entirely within one functional area are best managed by the Functional manager
 4. A grouping of projects is called a Business plan
 - a) 1,3
 - b) 1,4
 - c) 1,2
 - d) 2,3

4. The major difference between a project and a program is usually CO2 [K₂]
 a) The role of the sponsor b) The timeframe
 c) The role of the line manager d) The specifications

5. Assertion (A): CO3 [K₂]
 During project staffing, the primary role of senior management is in the selection of the Project manager
 Reason (R):

A project manager is far more likely to succeed if it is obvious to everyone that Executive management has officially appointed the project manager

- a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A
 c) A is true but R is false d) A is false but R is true
6. Which of the following generally cannot be validated using a work breakdown structure? CO3 [K₂]
 a) Schedule control b) Quality control
 c) Cost control d) Risk management

7. Sequencing type item CO4 [K₂]
 1. Define the Schedule and Sequence the Activities.
 2. Estimate the Resources Needed and duration of each Activities.
 3. Schedule Development.
 4. Monitoring and Controlling the Schedule.
 a) 4-1-3-2 b) 1-3-2-4
 c) 3-4-2-1 d) 2-1-4-3

8. Matching type item with multiple choice code CO4 [K₂]

List I	List II
A. The shortest time necessary to complete all of the activities in a network is called the	i. PERT
B. The first step in the development of a schedule is a	ii. Dummy activities
C. Activities with no time duration are called	iii. Critical path
D. A network-based technique that allows for branching and looping is	iv. Listing of the activities

	A	B	C	D
a)	ii	i	iv	iii
b)	iii	iv	ii	i
c)	ii	iv	iii	i
d)	iii	i	ii	iv

9. Assertion (A): A contract entered into after following normal procedures (i.e., negotiation of terms, conditions, cost, and schedule) but prior to initiation of performance is known as a Definitive contract CO5 [K2]
Reason (R): A written preliminary contractual instrument prepared prior to the issuance of a definitive contract that authorizes the contractor to begin work immediately, within certain limitations, is known as a Preliminary contract
- a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A
- c) A is true but R is false d) A is false but R is true
10. What is the primary objective the customer's project manager focuses on when selecting a contract type? CO5 [K1]
- a) Transferring all risk to the contractor b) Creating reasonable contractor risk with provisions for efficient and economical performance incentives for the contractor
- c) Retaining all project risk, thus reducing project contract costs d) The price ceiling is reached after the contractor recovers the target profit.

PART B (10 x 2 = 20 Marks)
(Answer not more than 40 words)

11. List out the four categories of project. CO1 [K₁]
12. List some objectives for a successful project management which can be achieved. CO1 [K₁]
13. Discuss the skills of area that requires for effective planning. CO2 [K₂]
14. State the main role of project manager in project planning. CO2 [K₁]
15. Write some notes on basic question which is usually considered for staffing function. CO3 [K₁]
16. List the responsibilities of the project office in Project organization. CO3 [K₂]
17. Describe Slack Time. CO4 [K₁]
18. List the project evaluation methods. CO4 [K₂]
19. What are the primary measures of performance measures for project managers. CO5 [K₁]
20. State the environmental project manager role. CO5 [K₂]

Answer any FIVE Questions:-
PART C (5 x 14 = 70 Marks)
(Answer not more than 300 words)

Q.No. 21 is Compulsory

21. Explain the various Phases of project life cycle. CO1 [K₁]
22. List the outline of stepwise project planning. CO2 [K₁]
23. Briefly explain the general Contractor Responsibilities CO3 [K₂]

24. Discuss the personal characteristics of the project manager

CO3 [K₂]

25. A small project is having seven activities (A to G). The relevant data about these activities is given below:

CO4 [K₃]

Activity	Dependence	Normal Duration (Days)	Crash Duration (Days)	Normal Cost (Rs.)	Crash Cost (Rs.)
A	—	7	5	500	900
B	A	4	2	400	600
C	A	5	5	500	500
D	A	6	4	800	1000
E	B,C	7	4	700	1000
F	C,D	5	2	800	1400
G	E,F	6	4	800	1600

(i) Draw the project network. Find out the duration of each path in the network.

(ii) Mark the critical path in the network and find out its length.

(iii) What is the percentage increase in cost to complete the project in 21 days?

26. Explain in detail about the following

CO4 [K₂]

(i) Gantt charts

(7)

(ii) critical path analysis (CPA)

(7)

27. Discuss briefly about the better CM and DM companies for project management.

CO5 [K₃]
